

## ABSTRACT

In a multiple-carrier modulation system, each carrier signal of the multiple carrier system is distributed, recombined, optionally band pass filtered, and transmitted to downlink devices such as cellular phones. The 5 distribution and recombination is performed by either a space-fed technique or through the use of a Rotman lens fed in reverse. The phases of the distributed signals are controlled to be coherent when recombined. Also, a capacity of the multiple carrier system is enhanced through polarization of the carriers in a space-fed version of the system.

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